### EXPLANATION

GEOLOGY GENERALIZED FROM HOARE AND COONRAD (1978)

# CORRELATION OF MAP UNITS SURFICIAL DEPOSITS

QU ) QUATERNARY

C, SEDIMENTARY, INTRUSIVE ROCKS

Jk Jvs ) Middle to Lower Upper Jurassic JURASSIC Jg Jum

Lower Cretaceous

MESOZOIC

AND

Lower Ordovician ?

Paleozoic

Pzcs

PALEOZOIC

Pzmg

PALEOZ

PALEOZOIC

Pzmg

PALEOZ

PRE-CAMBRIAN

## DESCRIPTION OF MAP UNITS SURFICIAL DEPOSITS

QU UNCONSOLIDATED SEDIMENTARY DEPOSITS

SEDIMENTARY, VOLCANIC, AND METAMORPHIC ROCKS

SEDIMENTARY, VOLCANIC, AND METAMORPHIC ROCKS

TOGIAK BASALT

QTS SEMICONSOLIDATED MARINE BEACH SEDIMENTS

Tv VOLCANIC ROCKS AND VOLCANOGENIC SEDIMENTS - Chiefly andesitic flows and tuffs

KS SUMMIT ISLAND FORMATION - Nonmarine conglomerate, sandstone, shale, and carbonaceous mudstone

KUSKOKWIM GROUP - Conglomerate overlain by interbedded graywacke, siltstone, and shale; commonly micaceous; mostly marine

Kb BUCHIA RIDGE GRAYWACKE - Chiefly interbedded calcareous graywacke, siltstone, and conglomerate with local coquinas of Buchia shells

Kig LIMY GRIT AND LIMESTONE - Chiefly angular grit cemented by bioclastic limestone

TUFFS AND SEDIMENTARY ROCKS - Varied assemblage of andesitic tuffs, graywacke, siltstone, impure limestone, and tuffaceous chert; tuff and tuffaceous sediments commonly laumontitized

Kcg GRAYWACKE AND CONGLOMERATE - Marine graywacke, siltstone, and conglomerate; commonly calcareous

KJvs VOLCANIC AND SEDIMENTARY ROCKS - Interbedded intermediate to mafic flows, tuffs, tuffaceous sedimentary rocks, and argillite; intermediate composition tuffaceous rocks commonly laumontitized

JK KULUKAK GRAYWACKE - Chiefly very hard lithic graywacke and siltstone with local conglomerate

JVS VOLCANIC AND SEDIMENTARY ROCKS - Andesitic, trachytic, and basaltic flows and breccias interbedded with volcanogenic sedimentary rocks

VOLCANIC AND SEDIMENTARY ROCKS - Mafic flows and breccias interbedded with volcanogenic sedimentary rocks;

MZPZ

MESOZOIC AND PALEOZOIC ROCKS UNDIVIDED - Widespread marine unit including mafic to intermediate volcanic rocks, tuffaceous sedimentary rocks, chert, argillite, siltstone, graywacke, conglomerate, and limestone

VOLCANIC AND SEDIMENTARY ROCKS (Upper Triassic) - Locally differentiated marine unit of chert, tuffaceous cherty rocks, argillite, siltstone, wackes, conglomerate, limestone, and mafic flows and breccia

PV VOLCANIC ROCKS (Permian) - Locally differentiated marine unit of pillow basalts, massive mafic flows, breccia, and tuff

PI LIMESTONE (Permian) - Locally differentiated thin unit of marine limestone; generally tuffaceous, commonly has strong fetid odor

DOI LIMESTONE - Thin-bedded to massive limestone with minor interbedded tuff and mafic flows; locally recrystallized to marble with interbedded quartzite and quartz-chlorite schist

PZCS CALCAREOUS SCHIST (Permian or older?)

KANEKTOK METAMORPHIC COMPLEX - Gneiss, schist, amphibolite, and marble; upper greenschist to lower amphibolite facies

MARBLEIZED LIMESTONE - Locally differentiated

INTRUSIVE ROCKS

Tif FELSIC INTRUSIVE ROCKS - Chiefly rhyolitic to dacitic dikes and sills; locally mapped

Tim MAFIC INTRUSIVE ROCKS - Diabase, basalt, dioritic, and gabbroic dikes and sills locally mapped

Tn NAROGARUM COMPLEX - Quartz-rich porphyritic felsite intrusive-extrusive complex of dikes, sills, tuff, and breccias

TKg GRANITIC ROCKS - Chiefly quartz monzonite, granodiorite, and quartz diorite stocks

Jum ULTRAMAFIC ROCKS - Serpentinite, dunite, and websterite

Jt TRONDHJEMITE - Associated with serpentinite and gabbro

Pzmg METAGABBRO AND GREENSTONE - Probable dismembered ophiolite complex of mafic flows, dikes, volcanoclastic rocks, and gabbro altered by greenschist facies metamorphism and calcium metasomatism

GEOLOGIC SYMBOLS

Contact. Known, approximately located, gradational, and inferred. Most contacts between bedded rock units are probably faults

Fault or fault zone. Dashed where approximately located, inferred, or concealed

Thrust fault. Dashed where approximately located, inferred, or concealed. Sawteeth on upper plate

Hornfels

### GEOCHEMICAL SYMBOLS

RED MOUNTAIN ULTRAMAFIC BODY

RED MOUNTAIN CONTACT ZONE

GEOCHEMICAL SAMPLE SITES

ROCK (CLARK, GRYBECK, GREENWOOD, AND OTHERS, 1978;

COONRAD, AND OTHERS, 1978)

\* CONCENTRATE (OVERSTREET, AND OTHERS, 1973)

OFFSHORE AND ONSHORE SEDIMENTS (BARNES, AND)

OTHERS, 1978)

BEACH AND STREAM SEDIMENTS (BERRYHILL, 1963)

• STREAM DRAINAGE SEDIMENT (HESSIN, AND OTHERS, 1978)

 STREAM DRAINAGE SEDIMENT (CLARK, GRYBECK, HESSIN, AND OTHERS, 1978)

• STREAM DRAINAGE SEDIMENT (EAKINS, 1968, 1969)

NUMBER WITH SOLID ROCK SAMPLE-SITE SYMBOL REPRESENTS GEOCHEMICAL CONCENTRATION IN PARTS PER MILLION (PPM)( ★ INDICATES ATOMIC-ABSORPTION)

SOLID STREAM-DRAINAGE SAMPLE-SITE SYMBOL
 INDICATES GEOCHEMICAL ABUNDANCE OF 90TH
 PERCENTILE VALUE OR GREATER IN TWO OR MORE
 GEOCHEMICAL DETERMINATIONS AS SHOWN IN HISTOGRAMS

ABUNDANCE SYMBOLS REPRESENTING 95TH PERCENTILE OR GREATER CONCENTRATIONS DETERMINED IN STREAM-DRAINAGE SITE SAMPLES ARE SHOWN WITH HISTOGRAMS

### DISCUSSION OF GEOCHEMISTRY

THIS REPORT SHOWS THE DISTRIBUTION AND ABUNDANCE OF ZINC AS GEOCHEMI-CALLY DETERMINED IN VARIOUS SAMPLE MEDIA COLLECTED FROM LOCATIONS THROUGHOUT THE GOODNEWS AND HAGEMEISTER ISLAND QUADRANGLES REGION. DATA PRESENTED HAVE BEEN COMPILED FROM ANALYSES AND LOCATIONS REPORTED BY BARNES AND OTHERS (1978); BERRYHILL (1963); CLARK, GRYBECK, GREEN-WOOD, AND OTHERS (1978); CLARK, GRYBECK, HESSIN, AND OTHERS (1978); COONRAD AND OTHERS (1978); EAKINS (1968, 1969); HESSIN AND OTHERS (1978); AND OVERSTREET AND OTHERS (1973).

THE INCLUDED HISTOGRAMS HAVE BEEN USED TO IDENTIFY CONCENTRATIONS OF ZINC THAT MIGHT BE ANOMALOUS. HOWEVER, THE GENERALIZED GEOLOGIC MAP DATA INCLUDED IN THIS REPORT AND THE MORE DETAILED GEOLOGIC MAP OF THE REGION (HOARE AND COONRAD, 1978) SHOULD BE UTILIZED IN CONSIDERING POSSIBLE SOURCE ROCKS AND SIGNIFICANCE OF THE ZINC THAT HAS BEEN DETECTED IN VARIOUS GEOCHEMICAL SAMPLES.

BACKGROUND INFORMATION RELATING TO THIS REPORT IS PUBLISHED AS U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT 78-9 (AVAILABLE FROM THE SAME SOURCE AS THE MAP)

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.

